What is Claimed is:

1. A method for measuring cardiac output comprising:

(1) quantitatively measuring a patient's airflow, a first parameter indicative of a percent oxygen inhaled and exhaled by such a patient, and a second parameter indicative of such a patient's fractional arterial oxygen concentration;

(2) inducing a change in such a patient's arterial oxygen concentration;

(3) repeating the airflow, the first parameter and the second parameter measurements set forth in step (1); and

(4) determining the patient's cardiac output based on the airflow, the first parameter, and the second parameter information collected in steps (1) and (3).

2. The method according to claim 1, wherein the second parameter indicative of fractional arterial oxygen concentration is one of $SaO_2$, $PaO_2$, $CaO_2$ or $SpO_2$.

3. The method according to claim 1, wherein measuring the airflow includes providing a flow sensor proximate to such a patient's airway, wherein the flow sensor outputs a flow signal indicative of a flow of breathing to or from such a patient.

4. The method according to claim 1, wherein measuring the first parameter includes providing an oxygen analyzing element proximate to such a patient's

airway, wherein the oxygen analyzing element outputs an oxygen concentration signal indicative of an amount of oxygen in gas passing through the oxygen sensor.

5. The method according to claim 1, wherein measuring the second parameter includes providing a pulse oximeter sensor in contact with such a patient, wherein the pulse oximeter sensor output a signal indicative of an oxygen saturation $SaO_2$ of such a patient.

6. The method according to claim 1, wherein inducing a change in such a patient's arterial oxygen concentration includes introducing a non-oxygen breathing gas into a stream of gas to be inhaled by such a patient.

7. The method according to claim 1, wherein inducing a change in such a patient's arterial oxygen concentration includes rebreathing gas exhaled by such a patient.

8. The method according to claim 7, wherein rebreathing includes removing carbon dioxide $CO_2$ from the exhaled gas before the exhaled gas is rebreathed.

9. The method according to claim 1, wherein determining the patient's cardiac output includes:

determining a deviation of such a patient's oxygen uptake from a baseline oxygen uptake level occurring responsive to the induced change in such a patient's arterial oxygen concentration in step (2);

determining a deviation of such a patient's arterial oxygen concentration from a baseline arterial oxygen concentration level occurring responsive to the induced change in such a patient's arterial oxygen concentration in step (2); and

comparing the deviation in oxygen uptake to the deviation in arterial oxygen concentration.

10. The method according to claim 9, wherein determining the deviation of such a patient's oxygen uptake includes determining an effective area between the baseline oxygen uptake level and an oxygen uptake curve occurring responsive to the execution of step (2), and wherein determining the deviation of such a patient's arterial oxygen concentration includes determining an effective area between the baseline arterial oxygen concentration level and an arterial oxygen concentration curve occurring responsive to the execution of step (2).

11. The method according to claim 9, wherein determining the deviation of such a patient's oxygen uptake includes determining a slope of a line extending between the baseline oxygen uptake level and a point on an oxygen uptake curve occurring responsive to the execution of step (2), and wherein determining the deviation of such a patient's arterial oxygen concentration includes determining a slope of a line

extending between the baseline arterial oxygen concentration level and a point on an arterial oxygen concentration curve occurring responsive to the execution of step (2).

12. The method according to claim 9, wherein determining the deviation of such a patient's oxygen uptake includes determining a magnitude between the baseline oxygen uptake level and a point on an oxygen uptake curve occurring responsive to the execution of step (2), and wherein determining the deviation of such a patient's arterial oxygen concentration includes determining a magnitude between the baseline arterial oxygen concentration level and a point on an arterial oxygen concentration curve occurring responsive to the execution of step (2).

13. The method according to claim 1, further comprising outputting, in human perceivable form, an indication of the cardiac output determined in step (4).

14. An apparatus for measuring cardiac output comprising:

a patient flow measuring system adapted to quantitatively measuring a patient's airflow;

an oxygen analyzing system adapted to measure a first parameter indicative of a percent oxygen inhaled and exhaled by such a patient;

means for measuring a second parameter indicative of such a patient's fractional arterial oxygen concentration;

means for inducing a change in such a patient's arterial oxygen concentration;

a processor adapted to determine such a patient's cardiac output based on the output of the measured airflow, the first parameter, and the second parameter; and

outputting means for outputting a result indicative of such a patient's cardiac output in human perceivable form.

15. The apparatus according to claim 14, wherein the means for measuring the second parameter is a pulse oximetry system including a pulse oximeter sensor in contact with such a patient.

16. The apparatus according to claim 14, wherein the second parameter indicative of fractional arterial oxygen concentration is one of $SaO_2$, $PaO_2$, $CaO_2$ or $SpO_2$.

17. The apparatus according to claim 14, wherein the patient flow measuring system includes a flow sensor disposed proximate to such a patient's airway such that gas inhaled and exhaled by the patient passes through the flow sensor.

18. The apparatus according to claim 14, wherein the oxygen analyzing system includes and oxygen analyzing element comprising (a) an airway adapter having an optical window and (b) an oxygen transducer having an photoemitter and a photodetector, and wherein the oxygen analyzing element is disposed proximate to such a

patient's airway such that gas inhaled and exhaled by such a patient passes in front of the optical window.

19. The apparatus according to claim 14, wherein the means for inducing a change in such a patient's arterial oxygen concentration comprises a system for introducing a non-oxygen breathing gas into a stream of gas to be inhaled by such a patient.

20. The apparatus according to claim 14, wherein the means for inducing a change in such a patient's arterial oxygen concentration comprises a rebreathing system for causing such a patient to rebreathe gas exhaled by such a patient.

21. The apparatus according to claim 20, wherein the rebreathing system further comprises means for removing carbon dioxide $CO_2$ from the exhaled gas before the exhaled gas is rebreathed.

22. The apparatus according to claim 14, wherein the processor determines:

(a) a deviation of such a patient's oxygen uptake from a baseline oxygen uptake level occurring responsive to an induced a change in such a patient's arterial oxygen concentration;

(b) a deviation of such a patient's arterial oxygen concentration from a baseline arterial oxygen concentration level occurring responsive to an induced a change in such a patient's arterial oxygen concentration; and

(c) compares the deviation in oxygen uptake to the deviation in arterial oxygen concentration.

23. The apparatus according to claim 22, wherein the processor determines the deviation of such a patient's oxygen uptake by determining an effective area between the baseline oxygen uptake level and an oxygen uptake curve occurring responsive to the induced change in such a patient's arterial oxygen concentration, and determines a deviation of such a patient's arterial oxygen concentration by determining an effective area between the baseline arterial oxygen concentration level and an arterial oxygen concentration curve occurring responsive to the induced change in such a patient's arterial oxygen concentration.

24. The apparatus according to claim 22, wherein the processor determines the deviation of such a patient's oxygen uptake by determining a slope of a line extending between the baseline oxygen uptake level and a point on an oxygen uptake curve occurring responsive to the induced change in such a patient's arterial oxygen concentration, and determines the deviation of such a patient's arterial oxygen concentration by determining a slope of a line extending between the baseline arterial oxygen concentration level and a point on an arterial oxygen concentration curve

occurring responsive to the induced change in such a patient's arterial oxygen concentration.

25. The apparatus according to claim 22, wherein the processor determines the deviation of such a patient's oxygen uptake by determining a magnitude between the baseline oxygen uptake level and a point on an oxygen uptake curve occurring responsive to the induced change in such a patient's arterial oxygen concentration, and determines the deviation of such a patient's arterial oxygen concentration by determining a magnitude between the baseline arterial oxygen concentration level and a point on an arterial oxygen concentration curve occurring responsive to the induced change in such a patient's arterial oxygen concentration.